

SITE-SPECIFIC HEALTH AND SAFETY PLAN FOR CONTAMINATION ASSESSMENT OF BASE FAMILY HOUSING AND 22 BRAC TANK SITES

NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

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REFERENCES

The following chapters of the Comprehensive Long-term Environmental Action Navy (CLEAN) Program District I Generic Health and Safety Plan (HASP) are applicable for the work anticipated at the site:

<u>/</u> 2.0	AUTHORITY AND RESPONSIBILITY OF HEALTH AND SAFETY PERSONNEL						
<u>✓</u> 3.0	TRAINING PROGRAM						
<u>/</u> 4.0	MEDICAL SURVEILLANCE PROGRAM						
<u>/</u> 5.0	ENGINEERING CONTROLS						
<u></u> ✓ 6.0	PERSONAL PROTECTIVE LEVEL DETERMINATION						
<u>✓</u> 7.0	MONITORING EQUIPMENT						
8.0	ZONATION						
<u>/</u> 9.0	WORK PRACTICES						
10.0	CONFINED SPACE ENTRY PROCEDURES						
11.0	EXCAVATION AND TRENCHING						
<u>✓</u> 12.0	TEMPERATURE EXTREMES HEAT STRESS COLD STRESS						
<u>✓</u> 13.0	DECONTAMINATION						
<u></u>	EMERGENCY PLANNING						
<u>✓</u> 15.0	HEALTH AND SAFETY FORMS AND DATA SHEETS HEALTH AND SAFETY AUDIT FORM ACCIDENT REPORT FORM HEALTH AND SAFETY OFFICER (HSO) CHECKLIST FOR FIELD OPERATIONS MATERIAL SAFETY DATA SHEETS LIQUI-NOX ETHYL ALCOHOL (denatured) TRISODIUM PHOSPHATE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) POSTER DAILY HEALTH AND SAFETY AUDIT FORM						
16.0	RESPIRATORY PROTECTION PROGRAM						
17.0	OTHER ILLUMINATION SANITATION HEALTH AND SAFETY AUDIT PROCEDURES						

GLOSSARY

ABB-ES ABB Environmental Services, Inc.

BRAC base realignment and closure

CFR Code of Federal Regulations

CLEAN Comprehensive Long-Term Environmental Action, Navy

HASP Health and Safety Plan
HSM Health and Safety Manager
HSO Health and Safety Officer
HSS Health and Safety Supervisor

NAS Naval Air Station

OSHA Occupational Safety and Health Administration

PAH polynuclear aromatic hydrocarbons

PM project manager

TM trademark

USEPA U.S. Environmental Protection Agency

1.0 INTRODUCTION

1.1 SCOPE AND PURPOSE. This Health and Safety Plan (HASP) has been prepared in conformance with the Comprehensive Long-Term Environmental Action, Navy (CLEAN) program District I HASP and is intended to meet the requirements of 29 Code of Federal Regulations (CFR) 1910.120. As such, the HASP addresses those activities associated with field operations for this project. Compliance with this HASP is required for all ABB Environmental Services, Inc. (ABB-ES) personnel, contractor personnel, or third parties entering the site.

1.2 PROJECT PERSONNEL.

- 1.2.1 Project Manager The project manager (PM) is the individual with overall project management responsibilities. Those responsibilities as they relate to health and safety include provision for the development of this site-specific HASP, the necessary resources to meet requirements of this HASP, the coordination of staff assignments to ensure that personnel assigned to the project meet medical and training requirements, and the means and materials necessary to resolve any health and safety issues that are identified or that develop on the project.
- 1.2.2 General Site Supervisor The general site supervisor is either the PM or the PM's designee who is onsite and vested with the authority by the PM to carry out day-to-day site operations, including interfacing with the site health and safety officer (HSO).
- 1.2.3 HSO The HSO for this project has been designated by the PM with concurrence of the health and safety supervisor (HSS) or health and safety manager (HSM). The HSO will have at least an indirect line of reporting to the HSM through the HSS for the duration of his or her assignment as project HSO. The HSO is responsible for developing and implementing this site-specific HASP in accordance with the CLEAN HASP. The HSO will investigate all accidents, illnesses, and incidents occurring onsite. The HSO will also conduct safety briefings and site-specific training for onsite personnel. As necessary, the HSO will accompany all U.S. Environmental Protection Agency (USEPA), Occupational Safety and Health Administration (OSHA), or other governmental agency personnel visiting an ABB-ES site in response to health and safety issues. The HSO, in consultation with the HSS or HSM, is responsible for updating and modifying this HASP as site or environmental conditions change.
- 1.3 TRAINING. Training is defined under the CLEAN HASP. All personnel entering potentially contaminated areas of this site must complete a 40-hour training program and meet the requirements set by OSHA in standard 29 CFR 1910.120. Personnel without the required training will not be permitted in any area with potential for exposure to toxic substances or harmful physical agents (i.e., downrange). Refer to Chapter 3.0 of the CLEAN HASP for further information.
- All personnel assigned to an ABB-ES site must participate in the site-specific training presentation, which will cover major elements of the site HASP, as well as health and safety procedures regarding an individual's specific job responsibilities and tasks. The site HSO or health and safety designee will

2.0 FACILITY SITE CHARACTERIZATION AND ANALYSIS

- 2.1 SITE NAME AND LOCATION. The Base Family Housing and 22 Base Realignment and Closure (BRAC) tank sites are located throughout Naval Air Station (NAS) Cecil Field in Jacksonville, Florida. Individual site locations are presented in the NAS Cecil Field Tank Management Plan (ABB-ES, 1997).
- **2.2 SITE HISTORY AND LAYOUT**. Site History and layout are presented in the Environmental Baseline Survey Report. Underground storage tank and aboveground storage tank construction details are presented in the NAS Cecil Field Tank Management Plan (ABB-ES, 1997).
- 2.3 SCOPE OF WORK (WORKPLAN). ABB-ES will conduct a contamination assessment at the site to evaluate the release of petroleum contamination in soil and groundwater at the Base Family Housing and 22 BRAC tank sites. The field investigation will consist of advancing soil borings and installing shallow temporary monitoring wells.

3.0 TASK ANALYSIS

3.1 TASK ONE.

<u>3.1.1 Hazardous Substances</u> The contaminants of concern known or suspected to be present onsite, along with established exposure limits for those substances, are listed in Table 3-1.

Table 3-1
Contaminants of Concern

Site-Specific Health and Safety Plan Naval Air Station Cecil Field Jacksonville, Florida

Chemical	Approximate Odor Threshold (ppm)	Permissible Exposure Limits (ppm)	Threshold Limit Value (ppm)	Physical Characteristics	Dermal Toxicity	Remarks
Benzene	4.7	1	1	Colorless liquid, pleasant aromatic odor.	Moderate skin irritant.	Inhalation of large amounts attacks central nervous system; chronic poisoning causes leuke- mia.
Ethylbenzene	140	100	100	Colorless liquid, aromatic odor.	Moderate skin irritant.	Liquid blisters skin; inha- lation results in dizziness, depression.
Toluene	0.17	100	100	Colorless liquid, pleasant aromatic odor.	Mild skin irri- tant.	Ingestion or aspiration can cause pulmonary edema, depressed respiration, kid- ney and liver damage.
Xylene	0.05	100	100	Colorless liquid, aromatic odor.	Moderate skin irritant.	Inhalation causes head- ache and dizziness; va- pors irritate eyes; can be fatal if ingested.
Naphthalene		10	10	Colorless to brown solid with an odor of moth- balls.	Moderate skin irritant.	Inhalation causes head- ache and confusion; va- pors irritate eyes.

Notes: ppm = parts per million.

- <u>3.1.2 Site Risks</u> The following are the health hazards and safety hazards that are expected to be encountered at the site.
- 3.1.2.1 Health Hazards Petroleum substances to which personnel may be exposed include heating oil, gasoline, diesel fuel, lube oil, and waste oil. The primary constituents of these substances that represent potential health hazards are described below and summarized in Table 3-1.

BENZENE is a colorless liquid with a pleasant aromatic odor. It is a moderate irritant in small amounts both as a gas and as a liquid. If inhaled in large amounts, it attacks the central nervous system, possibly resulting in coma and/or respiratory arrest. Chronic poisoning causes leukemia.

^{-- =} not applicable.

- 3.1.2.3 Conclusions and Risk Assessment Based on all of the available information (nature of the work, potential onsite chemicals and their properties, exposure limits, etc.), hazards associated with conducting the described fieldwork are considered to be <u>low</u>, assuming appropriate health and safety practices are maintained.
- $\underline{3.1.3}$ Protective Measures The protective measures that will be used at the site are described below:
- 3.1.3.1 Engineering Controls Whenever needed, engineering controls (i.e., fans to blow volatilized chemicals away from the work area) will be used.
- 3.1.3.2 Levels of Protection A Level D work uniform will be used at the site. Level D protection should only be used when the atmosphere contains no known hazard; all potential airborne contaminants can be monitored; and work functions preclude splash, immersion, or the potential for unexpected inhalation or contact with hazardous levels of any chemical.
- 3.1.4 Monitoring It is intended that real-time monitoring instrumentation will be used to monitor the work environment in order to ensure the appropriate level of protection for the site team.
- 3.1.4.1 Air Sampling To the extent feasible, the presence of airborne contaminants will be evaluated through the use of direct reading instrumentation. Information gathered will be used to ensure the adequacy of the levels of protection being used at the site, and may be used as the basis for upgrading or downgrading the levels of protection in conformance with action levels provided in this HASP and at the direction of the site HSO.

The following sampling equipment will be used at the site. Refer to Chapter 7.0 of the CLEAN HASP for information on the calibration and maintenance of the equipment.

Heath PORTA-FID II (flame ionization detector)

If the FID detects a steady measurable quantity of organic vapors greater than 5 parts per million (above background conditions) in the breathing zone, the field team will withdraw from the site until health and safety conditions at the site are reevaluated.

3.1.4.2 Personal Monitoring Personal monitoring will be undertaken to characterize the personal exposure of high-risk employees to the hazardous substances they may encounter onsite. Personal monitoring will be conducted on a representative basis. Personnel who are represented by the sampling will be noted in field logs.

The following personal monitoring equipment will be used at the site. Refer to Chapter 7.0 of the CLEAN HASP for information on the maintenance and calibration of the equipment.

Thermoluminescent Dosimetry Body Badge

4.0 DATA SHEETS

BENZENE

				,			
Common Symptom		Colorless Gasoline-like odor		6. FIRE HAZARDS	10. HAZARD ASSESSMENT CODE		
			6.1 Flash Point: 12°F C.C. 6.2 Flammable Limits in Air: 1.3%-7.9% 6.3 Fire Extinguishing Agents: Dry chemical, foam, or carbon		(See Hazard Assessment Handbook) A-T-U-V-W		
Shut off igniti Stop discharg Stay upwind Isolate and re	on sources and call fire	e department. "knock down" vapor. rial.	6.4 6.5 6.6	dioxide Fire Extinguishing Agents Not to be Used: Water may be ineffective Special Hazards of Combustion Products: Not pertinent Behavior in Fire: Vapor is heavier	11. HAZARD CLASSIFICATIONS 11.1 Code of Federal Regulations: Flammable liquid		
Fire	Wear goggles and self	ignited in an enclosed area. -contained breathing apparatus. -emical, foam, or carbon dioxide. tive on fire.	6.7 6.8 6.9	than air and may travel considerable distance to a source of ignition and flesh back Ignition Temperature: 1097°F Electrical Hazard: Cless I,Group D Burning Rate: 6.0 mm/min Adiabatic Flame Temperature: Data not available	11.2 NAS Hazard Rating for Bulk Water Transportation: Category Rating Fire		
	CALL FOR MEDICAL AID. VAPOR Irritating to eyes, nose, and throat. If inhaled, will cause headache, difficult breathing, or loss of consciousness.			Stoichiometric Air to Fuel Ratio: Data not available Flame Temperature: Data not available	Human Toxicity		
Exposure	If breathing is difficult LIQUID Irritating to skin and a Harmful if swallowed. Remove contaminated Flush affected area w IF IN EYES, hold eyelic	yes.	7.1 7.2 7.3 7.4 7.5 7.8	7. CHEMICAL REACTIVITY Reactivity with Water: No reaction Reactivity with Common Materials: No reaction Stability During Transport: Stable Neutralizing Agents for Acids and Caustics: Not pertinent Polymerization: Not pertinent Inhibitor of Polymerization: Not pertinent	11.3 NFPA Hazard Classification: Category Classification Health Hazard (Blue)		
Water Pollution	HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS. May be dangerous if it enters water intakes. Water		7.7	Molar Ratio (Reactant to Product): Data not available	PROPERTIES 12.1 Physical State at 15°C and 1 atm: Liquid 12.2 Molecular Weight: 78.11 12.3 Boiling Point at 1 atm: 176°F = 80.1°C = 353.3°K 12.4 Freezing Point:		
(See Response M Issue warning			8.1	8. WATER POLLUTION Aquatic Toxicity: 5 ppm/6 hr/minnow/lethal/ distilled water 20 ppm/24 hr/sunfish/TL _m /tap water Waterfowl Toxicity: Data not	42.0°F = 6.5°C = 278.7°K 12.5 Critical Temperature: 552.0°F = 288.9°C = 562.1°K 12.6 Critical Pressure: 710 paia = 48.3 atm = 4.89 MN/m² 12.7 Specific Gravity: 0.879 at 20°C (liquid) 12.8 Liquid Surface Tension:		
3.1 CG Competib Hydroca 3.2 Formula: C6l 3.3 IMO/UN Desi 3.4 DOT ID No.:	16 gnation: 3.2/1114	4. OBSERVABLE CHARACTERISTICS 4.1 Physical State (as shipped): Liquid 4.2 Color: Colorless Odor: Aromatic; rather pleasant aromatic odor; characteristic odor	8.3 8.4	available Biological Oxygen Demand (BOD): 1.2 lb/lb, 10 days Food Concentration Potential: None	28.9 dynes/cm = 0.289 N/m at 20°C 12.9 Liquid Water Interfacial Tension: 35 dynes/cm = 0.035 N/m at 20°C 12.10 Vapor (Gas) Specific Gravity: 2.7 12.11 Ratio of Specific Heats of Vapor (Gas): 1.061 12.12 Latent Heat of Vaporization:		
hose m goggles mopper 5.2 Symptoms F flushing and pos 5.3 Treatment of remove water u immedia fo.5 Short Term Ir 5.6 Toxicity by Ir 5.8 Vapor (Gas) I 5.8 Vapor (Gas) I 5.9 Va	ective Equipment: Hydesk; hydrocarbon-insolutor face splash shield; le. Joliowing Exposure: Diz., weakness, headache, sible death. Exposure: SKIN: flush contaminated clothing ntil irritation subsides. Italy. Call a physician. ation, administer oxyginit Value: 10 ppm sheation Limits: 75 ppm gestion: Grade 3; LDs. Leukemia ritent Characteristics:	om for 30 min. io = 50 to 500 mg/kg If present in high concentrations, vapors	9.1 9.2 9.3 9.4	9. SHIPPING INFORMATION Grades of Purity: Industrial pure	169 Btu/lb = 94.1 cal/g = 3.94 X 10 ⁶ J/kg 12.13 Heat of Combustion:17,460 Btu/lb = -9698 cal/g = -406.0 X 10 ⁶ J/kg 12.14 Heat of Decomposition: Not pertinent 12.15 Heat of Solution: Not pertinent 12.16 Heat of Polymerization: Not pertinent 12.26 Heat of Polymerization: Not pertinent 12.26 Limiting Value: Data not available 12.27 Reid Vapor Pressure: 3.22 psia		
tempore 5.9 Liquid or Soli	ary, d Irritant Characteristic wed to remain, may ca Id: 4.68 ppm	respiratory system. The effect is s: Minimum hazard. If spilled on clothing use smarting and reddening of the skin.		NO	TES		

ETHYLBENZENE

Common Symptoms	Liquid	Coloriesa	Sweet, gasoline-like odor		6. FIRE HAZARDS
Phenylethane EB	Floats on water.	Flammable, irrita	ting vapor is produced.	6.1 6.2	Flesh Point: 80°F O.C.; 59°F. C.C. Flemmeble Limits in Air: 6.7%
Wear goggles, as (including glov Shut off ignition Stop discharge if Stay upwind and Isolate and remov Notify local healt	Ith liquid and vapor. If-contained breathin es). sources and call fire possible. Keep peop use water spray to we discharged meter h and pollution contr	department. ble away. "knock down" va al.		6.3 6.4 6.5 6.6	Fire Extinguishing Agents Foam (most effective), vfog, carbon dioxide or drohemical. Fire Extinguishing Agents be Used: Not pertinent Special Hazards of Combi Products: Irritating vapor generated when heated. Behavior in Fire: Vapor is
Fire Ex	Water may be ineffective on fire. Cook exposed containers with water.				than air and may travel considerable distance to source of ignition and flaback. Ignition Temperature: 86 Bectrical Hazard: Not pe Burning Rate: 5.8 mm/m Adiabatic Flame Tempera Data not available Stoichiometric Air to Fuel
Exposure Exposure Exposure	ALL FOR MEDICAL A APOR tating to eyes, nose, inteled, will cause di ove to freeh air. Coreathing has stoppe- oreathing has stoppe- oreathing is difficult, SUID If burn skin end eyes imful if swellowed, move contaminated ish affected areas w IN EYES, hold eyelids SWALLOWED and vi water or milk. D NOT INDUCE VOM	and throat. zziness and/or di d, give artificial r give oxygen. clothing and shoot th plenty of wate s open and flush ctim is CONSCIO	sepiration.	7.1 7.2 7.3 7.4 7.6 7.8	Data not available Flame Temperature: Data available 7. CHEMICAL REACTIVIT Reactivity with Water: N reaction Reactivity with Common Materials: No reaction Stability During Transport Stable Neutralizing Agents for A Caustios: Not pertinent Polymerization: Not pertinhibitor of Polymerization pertinent Molar Ratio (Reactant to Product): Data not availa
Water Pollution No	uling to shoreline, sy be dangerous if it atify local health and atify operators of nea	enters water inte		7.8	Reactivity Group: 32
(See Response Methor Mechanical con Should be remo Chemical and pl 3. CHEMICAL DES 3.1 CG Competibility Hydrocarbon 3.2 Formula: C6H5C	ods Hendbook) teinment wed hysical treatment SIGNATIONS Class: Aromatic H2CH3	4. OBSERVA 4.1 Physical Liquid 4.2 Color: (c	y: Flammeble liquid 3 BLE CHARACTERISTICS State (as shipped):	8.1 8.2 8.3 8.4	8. WATER POLLUTION Aquatic Toxicity: 29 ppn bluegill/TL_/fresh water Waterfowl Toxicity: Data available Biological Oxygen Demen (BOD): 2.8% (theor.), 6 Food Concentration Poter None
3.3 IMO/UN Designet 3.4 DOT ID No.: 11. 3.5 CAS Registry No 5.1 Personal Protecti goggles. 5.2 Symptoms Follov dizziness, depress irritates skin and Treatment of Exp keep him warm give artificial re approval; mater promptly flush v attention; remo 5.4 Threshold Limit V 5.5 Short Term Inhal 5.6 Toxicity by Ingas Late Toxicity: D. 5.7 Vapor (Gas) Irrita personnel will fi 5.8 Usguid or Solid Irrita 5.9 Liquid or Solid Irrita	5. HEALTH 5. HEALTH For Equipment: Self- wing Exposure: Inha- sion. Moderate irrita- may cause bilisters. sosure: INHALATIOI and quiet, and get re spiration. INGESTIO iel in lung may cause with plenty of water ve and wash contam value: 100 ppm ation Limits: 200 pr ston: Grade 2; LDso ata not available ant Cheracteristics: ind high concentratio itlant Cheracteristics short exposure; may	HAZARDS contained breath lation may cause lation of eye with N: If ill effects oc nedical help prom N: induce vomitin to chemical pneum (15 min. for eyes insted clothing b om for 30 min. = 0.5 to 5 g/kg Vapors cause mons unpleasant. 1: Causes smartir : Causes smartir	ing apparatus; safety irritation of nose, corneal injury possible. cur, remove to fresh air, ptly; if breathing stops, gonly upon physician's ionia. SKIN AND EYES;) and get medical efore reuse.	9.1 9.2 9.3 9.4	9. SHIPPING INFORMATION Grades of Purity: Resear grade:99.98%; pure gray 99.5%; technical grade: Storage Temperature: Allnert Atmosphere: No requirement Venting: Open (flame arr pressure-vacuum.

	
6. FIRE HAZARDS 6.1 Flesh Point: 80°F O.C.; 59°F. C.C. 6.2 Flemmeble Limits in Air: 1.0%-6.7% 6.7% 6.3 Fire Extinguishing Agents: Foam (most effective), water	10. HAZARD ASSESSMENT CODE (See Hezerd Assessment Hendbook) A-T-U
fog, carbon dioxide or dry chemical. 6.4 Fire Extinguishing Agents Not to be Used: Not pertinent 6.5 Special Hazards of Combustion Products: Irritating yapors are generated when heated. 6.6 Behavior in Fire: Vapor is heavier than air and may travel considerable distance to the source of ignition and flash back. 6.7 Ignition Temperature: 860°F 6.8 Bectrical Hazard: Not pertinent Burning Rate: 5.8 mm/min. 6.10 Adisbatio Flame Temperature: Data not available 6.11 Stoichiometric Air to Fuel Ratio: Data not available 7. CHEMICAL REACTIVITY 7.1 Reactivity with Water: No reaction Reactivity with Common Materials: No reaction Stabiley During Transport: Stabile 7.4 Neutralizing Agents for Acids and	11. HAZARD CLASSIFICATIONS 11.1 Code of Federal Regulations: Flammable liquid. 11.2 NAS Hezard Rating for Bulk Water Transportation: Catsgory Rating Fire
Caustics: Not pertinent 7.5 7.6 7.8 Inhibitor of Polymerization: Not pertinent 7.7 Molar Resio (Reactant to Product): Date not available 7.8 Reactivity Group: 32 8. WATER POLLUTION	12. PHYSICAL AND CHEMICAL PROPERTIES 12.1 Physical State at 15°C and 1 atm: Liquid 12.2 Molecular Weight: 106.17 12.3 Boiling Point at 1 atm: 277.2°F = 136.2°C = 409.4°K 12.4 Freezing Point: -139°F = -96.0°C = 178°K 12.5 Critical Temperature: 651.0°F = 343.9°C = 617.1°K 12.6 Critical Pressure: 623 psis = 35.6 atm = 3.61 MN/m²
8.1 Aquetic Toxicity: 29 ppm/96 hr/ bluegil/TL_/fresh water 8.2 Waterlow! Toxicity: Data not available 8.3 Biological Oxygen Demand (BOD): 2.8% (theor.), 5 days Food Concentration Potential: None	12.7 Specific Gravity:
9. SHIPPING INFORMATION 9.1 Grades of Purity: Research grade: 99.98%; pure grade: 99.5%; technical grade: 99.0% 9.2 Storage Temperature: Ambient Inert Atmosphere: No requirement 9.4 Venting: Open (flame arrester) or pressure-vacuum.	12.15 Heat of Solution: Not pertinent 12.16 Heat of Polymerization: Not pertinent 12.25 Heat of Fusion: Data not available 12.26 Limiting Value: Data not available 12.27 Reid Vapor Pressure: 0.4 psia

TOLUENE

Common Sympto Toluoi Methylbenzene Methylbenzol		Colorless Flammable, irritating vapor is	Pleasant odor produced.	6.1 Flesh Point: 40°F C.C.; 55° F. O.C. 6.2 Flemmeble Limits in Air: 1.27%- 7%		10. HAZARD ASSESSMENT CODE (See Hazard Assessment Handbook) A-T-U
Shut off igr Stay upwin Avoid conta Isolate and	Wear goggles and self	e department. "knock down" vapor. rial. r trail may occur. ignited in an enclosed area. -contained breathing apparatus emical, foam, or carbon dioxid ive on fire.	ı. e.	6.3 6.4 6.5 6.6 6.7 6.8 6.9	Fire Extinguishing Agents: Carbon dioxide or dry chemical for small fires, ordinary foam for large fires. Fire Extinguishing Agents Not to be Used: Water may be ineffective. Special Hazards of Combustion Products: Not pertinent Behavior in Fire: Vapor is heavier than air and may travel a considerable distance to a source of ignition and flash back. Ignition Temperature: 997°F Electrical Hazard: Class I, Group D Burring Rate: 5.7 mm/min. Adiabatic Flame Temperature:	11. HAZARD CLASSIFICATIONS 11.1 Code of Federal Regulations: Flammable liquid. NAS Hazard Rating for Bulk Water Transportation: Category Rating Fire
Exposure	difficult breathing. Move to fresh sir. If breathing has stopp if breathing is difficult LIQUID Irritating to skin and a if swellowed, will cau consciousness. Remove contaminate Flush affected areas v	s, end throat. neusea, vomiting, headache, di or loss of consciousness. ed, give artificial respiration. , give oxygen. syes. se nausea, vomiting, or loss of clothing and shoes. vith plenty of water.	f	6.10 6.11 6.12 7.1 7.2 7.3 7.4	Adiabatic Flame Temperature: Data not available. Stoichiometric Air to Fuel Ratio: Data not available. Flame Temperature: Data not available. 7. CHEMICAL REACTIVITY Reactivity with Water: No reaction Reactivity with Common Materials: No reaction Stability During Transport: Stable Neutralizing Agents for Acids and Caustios: Not pertinent	Aquatic Toxicity 3 Aesthetic Affect 2 Reactivity Other Chemicals 1 Self Reaction 0 11.3 NFPA Hazerd Classification: Category Classification Health Hazerd (Blue) 3 Reactivity (Yellow) 0
Water Pollution	IF SWALLOWED and water or milk. DO NOT INDUCE VO! Dangerous to aquatic Fouling to shoreline. May be dangerous if I Notify local health an Notify operators of ne	life in high concentrations. t enters water intakes. d wildlife officials. sarby water intakes.	of water.	7.5 7.6 7.7 7.8	Polymerization: Not pertinent Inhibitor of Polymerization: Not pertinent Molar Ratio (Reactant to Product): Data not available Reactivity Group: 32	12. PHYSICAL AND CHEMICAL PROPERTIES 12.1 Physical State at 15°C and 1 atm: Liquid 12.2 Molecular Weight: 92.14 12.3 Boiling Point at 1 atm: 231.1°F = 110.6°C = 383.8°K 12.4 Freezing Point: -139°F = -95.0°C = 178.2°K 12.5 Critical Temperature: 605.4°F = 318.6°C = 591.8°K
3. CHEMICA 3.1 CG Compa Hydrocart 3.2 Formula: (3.3 IMO/UN De	AL DESIGNATIONS atibility Class: Aromatic bon C8H5CH3 esignation: 3,2/1294	2. LABEL 2.1 Category: Flammab 2.2 Class: 3 4. OBSERVABLE CHARA 4.1 Physical State (as sit Liquid 4.2 Color: Colorless 4.3 Odor: Pungent, aron benzene-like; distinct	CTERISTICS hipped):	8.1 8.2 8.3 8.4	8. WATER POLLUTION Aquatic Toxicity: 1180 mg/l/96 hr/sunfish/TL_/fresh water Waterfowl Toxicity: Data not available Biological Oxygen Demand (BODI: 0%, 5 days; 38% (theor.), 8 days Food Concentration Potential: None	12.6 Critical Pressure: 596.1 psis = 40.55 atm = 4.108 MN/m² 12.7 Specific Gravity: 0.867 at 20°C (liquid) 12.8 Liquid Surface Tension: 29.0 dynes/cm = 0.0290 N/m at 20°C 12.9 Liquid Water Interfacial Tension: 36.1 dynes/cm = 0.0361 N/m at 25°C 12.10 Vapor (Gae) Specific Gravity: Not pertinent 12.11 Ratio of Specific Heats of Vapor (Gas): 1.089 12.12 Latent Heat of Vaporization: 165 Btu/lb = 86.1 cal/g = 3.61 X 10° J/kg 12.13 Heat of Combustion: -17.430
5.2 Symptoms cause diz. and cause and rapid griping, d 5.3 Treatment respiration vomiting; wipe off, 5.4 Threshold 5.5 Short Term 5.6 Toxicity by 6.7 Late Toxici variety or respiratemporary	rotective Equipment: Air oves. Following Exposure: Variness, headache, anesthes drying of skin. If aspirier head of skin. If aspirier head of Exposure: INHALATI, of Exposure: INHALATI, of Exposure: INHALATI, or and oxygen if needed; or call a doctor. EYES: flux wash with soap and wat Limit Value: 100 ppm in Inhalation Limits: 600 / Ingestion: Grade 2; LD: tyx (Idney and liver dam is) Irritant Characteristics: tory system if present in y.	DN: remove to fresh air, give a sall a doctor. INGESTION: do it in with water for at least 15 m er.	spiratory tract; irritates eyes g, distress, mitting, rtificial NOT induce in. SKIN:	9.1 9.2 9.3 9.4	9. SHIPPING INFORMATION Grades of Purity: Research, reagent, nitration-all 99.8 + %; industrial: contains 94 + %, with 6% xylene and small amounts of benzene and nonaromatic hydrocarbons; 90/120: less pure than industrial. Storage Temperature: Ambient Inert Atmosphere: No requirement Venting: Open (flame arrester) or pressure-vacuum.	X 10° J/kg 12.14 Heat of Decomposition: Not pertinent 12.15 Heat of Solution: Not pertinent 12.16 Heat of Polymerization: Not pertinent 12.16 Heat of Polymerization: Not pertinent 12.25 Heat of Fusion: 17.17 cal/g 12.26 Limiting Value: Data not available 12.27 Reid Vapor Pressure: 1.1 psia
and allow	red to remain, may cause shold: 0.17 ppm	 Minimum hazard. If spilled smarting and reddening of the 	skin.		NO:	TES

p-XYLENE

Freezing point is rge if possible. Keep possible. Keep possible to twith liquid and vapor. remove discharged mate health and pollution control of the possible to the possibl	opie away.	6.1 6.2 6.3 6.4 6.5 6.6	6. FIRE HAZARDS Flash Point: 81°F C.C. Flammable Limits in Air: 1. 6.6% Fire Extinguishing Agents: dry chemical, or carbon did Fire Extinguishing Agents be Used: Water may be ineffective. Special Hezerds of Combust Products: Not pertinent
artment. ct with liquid and vapor. remove discharged mate- health and pollution con- FLAMMABLE Flashbeck along vapor Vapor may explode if	rial.	6.4 6.5	dry chemical, or carbon die Fire Extinguishing Agents N be Used: Water may be ineffective. Special Hezards of Combust Products: Not pertinent
Flashback along vapor Vapor may explode if			Behavior in Fire: Vapor is h than air and may travel considerable distance to a
Wear self-contained b Extinguish with foam, Water may be ineffect Cool exposed contained CALL FOR MEDICAL	6.7 6.8 6.9 6.10 6.11	source of ignition and flast back. Ignition Temperature: 870 Electrical Hazard: Class I, Group D Burning Rate: 5.8 mm/min Adiabatic Flame Temperatu Data not available Stoichiometric Air to Fuel R Data not available Flame Temperature: Data ravailable	
VAPOR Irritating to eyes, nose If inheled, will cause of consciousness. Move to fresh air. If breathing has stopp If breathing is difficult LIQUID Irritating to skin and et If swellowed, will cau Remove contaminated Flush affected areas v IF IN EYES, hold eyeli IF SWALLOWED and water or milk. DO NOT INDUCE Von	s, and throat. sizziness, difficult breathing, or loss of sizziness, difficult breathing, or loss of set, give artificial respiration. ges, give oxygen. yes. se nausee, vomiting, loss of consciousness. clothing and shoes. with plenty of water. ts open and flush with plenty of water. yictim is CONSCIOUS, have victim drink	7.1 7.2 7.3 7.4 7.6 7.6 7.7	7. CHEMICAL REACTIVITY Reactivity with Water: No reaction Reactivity with Common Materials: No reaction Stability During Transport: Stable Neutralizing Agents for Acid Caustics: Not pertinent Polymerization: Not pertinent Inhibitor of Polymerization: pertinent Moler Retio (Reactant to Product): Data not available Reactivity Group: 32
Fouling to shoreline. May be dangerous if i Notify local health and Notify operators of ne	t enters water intakes. I wildlife officials. arby water intakes.		
Mathods Handbook) ng-high flammability ea emoved	2. LABEL 2.1 Category: Flammable liquid 2.2 Class: 3	8.1 8.2 8.3	8. WATER POLLUTION Aquatic Toxicity: 22 ppm/s bluegil/TL _m /fresh water Waterfow! Toxicity: Data r available Biological Oxygen Demand (BOD): 0 lb/lb in 5 days Food Concentration Potenti
ibility Class: Aromatic on -C6H4(CH3)2 signation: 3.2/1307 : 1307	4. OBSERVABLE CHARACTERISTICS 4.1 Physical State (as shipped): Liquid 4.2 Color: Colorless 4.3 Odor: Like benzene; characteristic aromatic		Dete not available
5 HFALTI	I HAZARDS		
otective Equipment: Api Id; plastic gloves and bo Following Exposurs: Va es and skin. If taken into yedveloping pulmonary of an occur. of Exposure: INHALATIC and oxygen if required; call a dootor. EYES: icall a print Value: 100 page a mint Value: 100 page	proved canister or air-supplied mask; goggles obts. pors cause headache and dizziness. Liquid o lungs, causes severe coughing, distress, adema. If ingested, causes nausea, oma. Can be fatal. Kidney and liver ON: remove to fresh air; administer artificial call a doctor. INGESTION: do NOT induce h with water for at least 15 min.	9.1 9.2 9.3 9.4	9. SHIPPING INFORMATION Grades of Purity: Research: 99.99%; Pure: 99.8%; Technical: 95 Storage Temperature: Amb Inert Atmosphere: No requirement Venting: Open (flame arres pressure-vacuum
	VAPOR Irritating to eyes, nose if inheled, will cause of consciousness. Move to fresh air. If oreathing has stoppe if breathing is difficult, If oreathing is difficult, Irritating to skin and e if swellowed, will cause Remove contaminated Flush affected areas with Interest of the Irritating to skin and e if swellowed, will cause with Interest of the Irritating to skin and e water or milk. DO NOT INDUCE VON Water or milk. DO NOT INDUCE VON HARMFUL TO AQUAT Fouling to shoreline. May be dangerous if it Notify local health and Notify operators of network of the Irritation of the Irrita	Irritating to eyes, nose, and throat. If inhaled, will cause dizziness, difficult breathing, or loss of consciousness. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. LQUID Irritating to skin and eyes. If swellowed, will cause neuses, vomiting, loss of consciousness. Remove contaminated clothing and shoes. Flush affected areas with plenty of water. IF IN EYES, hold eyeilds open and flush with plenty of water. IF IN EYES, hold eyeilds open and flush with plenty of water. IF IN EYES, hold eyeilds open and flush with plenty of water. IF IN EYES, hold eyeilds open and flush with plenty of water. IF IN EYES, hold eyeilds open and flush with plenty of water. IF IN EYES, hold eyeilds open and flush with plenty of water. IF IN EYES, hold eyeilds open and flush with plenty of water. IF IN EYES, hold eyeilds open and flush with plenty of water. IF IN EYES, hold eyeilds open and flush with plenty of water. IF IN EYES, hold eyeilds open and flush with plenty of water. IF IN EYES, hold eyeilds open and flush with plenty of water. IF IN EYES, hold eyeilds open and flush with plenty of water. IF IN EYES, hold eyeilds open and water of the plenty of water. IF IN EYES, hold eyes and boots. IF IN EYES, blash with sold in the plenty of the plenty of water. IF IN EYES, blash with sold eyes and boots. If In EYES, blash with sold eyes and boot in the plenty of water and water of water and water of water and water and water.	CALL FOR MEDICAL AID. VAPOR Irritating to eyes, nose, and throat. If inheled, will cause dizziness, difficult breathing, or loss of consciousness. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. LIQUID Irritating to skin and eyes. If swellowed, will cause neusea, vomiting, loss of consciousness. Remove contaminated clothing and shoes. Flush affected areas with plenty of water. IF IN EYES, hold eyelids open and flush with plenty of water. IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk. DO NOT INDUCE VOMITING. HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS. Fouling to shoreline. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes. E TO DISCHARGE Methods Hendbook) ng-high flammability ea emoved and physical treatment 4. OBSERVABLE CHARACTERISTICS tibility Class: Aromatic on -CSH4(CH3)2 2.1 Category: Flammable liquid 2.2 Class: 3 8.4 L DESIGNATIONS 4. OBSERVABLE CHARACTERISTICS tibility Class: Aromatic on -CSH4(CH3)2 4.3 Odor: Like benzene; characteristic aromatic of Liquid 4.2 Color: Coloriess signetion: 3.2/1307 ry No.: 106-42-3 To HEALTH HAZARDS otective Equipment: Approved canister or air-supplied mask; goggles of characteristic aromatic Following Exposure: Vapora cause headache and dizziness. Liquid ces and skin, if taken not lungs, causes severe coughing, distress, yellowing Exposure: Vapora cause headache and dizziness. Liquid ces and skin if taken not lungs, causes severe coughing, distress, yellowing Exposure: Vapora cause headache and dizziness. Following Exposure: Vapora cause headache and dizziness. If ingested, cause severe coughing, distress, yellowing Exposure in treducing call a doctor. INGESTION: do NOT induce call a doctor. INGESTION: inGESTION: do NOT induce call a doctor. EYES: flush with water for at least 15 min.

	6. FIRE HAZARDS	10. HAZARD ASSESSMENT CODE (See Hazard Assessment Handbook)				
6.1 6.2	Flash Point: 81°F C.C. Flammable Limits in Air: 1.1%- 6.6%	A-T-U				
6.3	Fire Extinguishing Agents: Foam, dry chemical, or carbon dioxide.					
6.4	Fire Extinguishing Agents Not to be Used: Water may be ineffective.					
6.5	Special Hazards of Combustion Products: Not pertinent Behavior in Fire: Vapor is heavier	11. HAZARD CLASSIFICATIONS				
6.6	than air and may travel considerable distance to a source of ignition and flash back.	11.1 Code of Federal Regulations: Flammable liquid 11.2 NAS Hazzerd Rating for Bulk Water Transportation:				
6.7 6.8	Ignition Temperature: 870°F Electrical Hazard: Class I, Group D	Category Rating Fire				
6.9 6.10	Burning Rate: 5.8 mm/min. Adiabatic Flame Temperature:	Vapor Irritant 1 Liquid or Solid Irritant . 1 Poisons 2				
6.11	Data not available Stoichiometric Air to Fuel Ratio: Data not available	Water Pollution Human Toxicity 1 Aquatic Toxicity 3				
. 6.12	Rame Temperature: Data not available	Aesthetic Affect 2 Resctivity				
		Other Chemicals 1 Water 0 Self Reaction 0				
	7. CHEMICAL REACTIVITY	11.3 NFPA Hazard Classification: Category Classification Health Hazard (Blue) 2				
7.1	Reactivity with Water: No	Flammability (Red) 3 Reactivity (Yellow) 0				
7.2	reaction Reactivity with Common Materials: No reaction					
7.3 7.4	Stability During Transport: Stable Neutralizing Agents for Acids and					
7.6	Caustics: Not pertinent Polymerization: Not pertinent					
7.6 7.7	Inhibitor of Polymerization: Not pertinent Molar Ratio (Reactant to	12. PHYSICAL AND CHEMICAL PROPERTIES				
7.8	Producti: Data not available Reactivity Group: 32	12.1 Physical State at 15°C and 1 atm: Liquid				
		12.2 Molecular Weight: 106.16 12.3 Boiling Point at 1 atm: 280.9°F = 138.3°C = 411.5°K				
		12.4 Freezing Point: 55.9°F = 13.3°C = 286.5°K 12.5 Critical Temperature: 649.4°F				
		= 343.0°C = 616.2°K 12.6 Critical Pressure:				
	8. WATER POLLUTION	509.4 atm = 34.66 psia = 3.510 MN/m² 12.7 Specific Gravity:				
8.1 8.2	Aquatic Toxicity: 22 ppm/96/hr/ bluegill/TL _m /fresh water Waterfowl Toxicity: Data not	0.861 at 20°C (liquid) 12.8 Liquid Surface Tension: 28.3 dynes/cm = 0.0283				
8.2	available Biological Oxygen Demand	N/m at 20°C 12.9 Liquid Water Interfacial Tension:				
8.4	(BOD): 0 lb/lb in 5 days Food Concentration Potential: Data not available	37.8 dynes/cm = 0.0378 N/m at 20°C 12.10 Vapor (Gas) Specific Gravity:				
		Not pertinent 12.11 Ratio of Specific Heats of Vapor (Gas): 1.071				
		12.12 Latent Heat of Vaporization: 150 Btu/lb = 81 cal/g =				
		3.4 x 10 ⁵ J/kg 12.13 Heat of Combustion: 17,559 Btu/lb =9754.7				
		cal/g =406.41 x 10 ^b J/kg 12.14 Heat of Decomposition: Not pertinent				
	9. SHIPPING INFORMATION	12.15 Heat of Solution: Not pertinent 12.16 Heat of Polymerization: Not				
9.1	Grades of Purity: Research: 99.99%;	pertinent 12.25 Heat of Fusion: 37.63 cal/g 12.26 Limiting Value: Data not				
9.2 9.3	Pure: 99.8%; Technical: 99.0% Storage Temperature: Ambient	available 12.27 Reid Vapor Pressure: 0.34 psia				
9.3 9.4	Inert Atmosphere: No requirement Venting: Open (flame arrester) or					
	pressure-vacuum					
	a.e.	TEE				
1	NO:	I Eð				

5.0 SITE CONTROL

- <u>5.1 ZONATION</u>. Due to the nature of the work (multiple soil borings and monitoring well sampling throughout the study area) and the properties of the potential chemicals found onsite, typical exclusion, contamination reduction, and support zones are not necessary or practical at the site. Therefore, where appropriate, a floating exclusion zone in the perimeter of the sampling site will be established to eliminate access to the area by individuals not working on the project or involved in the assessment work. The perimeter will be at least 20 feet in radius and moved accordingly as the assessment points are moved.
- <u>5.2 COMMUNICATIONS</u>. When radio communication is not used, the following air horn signals will be employed:

```
HELP three short blasts ( . . . )

EVACUATION three long blasts ( _ _ _ )

ALL CLEAR alternating long and short blasts ( . .)
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- <u>5.3 WORK PRACTICES</u>. General work practices to be used during ABB-ES projects are described in Chapter 9.0 of the CLEAN HASP. Work at the site will be conducted according to these established protocols and guidelines for the safety and health of all involved. Specific work practices necessary for this project or those that are of significant concern are described below:
 - · Work and sampling will be conducted in Level D clothing and equipment.
 - While working in a boat or wading in a stream, all personnel will wear a life vest.

6.0 DECONTAMINATION AND DISPOSAL

All personnel and/or equipment leaving contaminated areas of the site will be subject to decontamination, which will take place in the contamination reduction zone. General decontamination practices used during ABB-ES projects are described in Chapter 13.0 of the CLEAN HASP.

- 6.1 PERSONNEL DECONTAMINATION. All personnel leaving the study area are subject to decontamination (as necessary). The decontamination procedure required will be determined by the nature and level of contamination found at the sites. At a minimum, site personnel will remove loose soil from boots and clothing before leaving the site. More thorough decontamination procedures will be observed as dictated by site conditions. These procedures are described in Chapter 13.0 of the CLEAN HASP.
- 6.1.1 Small Equipment Decontamination Small equipment will be protected from contamination as much as possible by keeping the equipment covered when at the site and placing the equipment on plastic sheeting, not on the ground. Sampling equipment used at the site will be used only once or will be field cleaned between samples with soapy water (Alconox), rinsed with clean water, rinsed with an approved quality assurance/quality control solvent, and final rinsed with organic-free water.
- 6.1.2 Heavy Equipment Decontamination Drilling equipment will be protected from contamination as much as possible by placing the equipment on plastic sheeting, not on the ground. The drill rig and associated drilling equipment will be cleaned with high-pressure water or high-pressure steam followed by a soap and water wash and rinse. Loose material will be removed by brush. The person performing this activity will be at the level of protection used during the field investigation.
- <u>6.2 COLLECTION AND DISPOSAL OF DECONTAMINATION PRODUCTS</u>. All disposable protective gear, decontamination fluids (for both personnel and equipment), and other disposable materials will be disposed of at the site. Decontamination fluids (e.g., isopropanol from split spoons and groundwater sampling pumps) will be stored in amber glass bottles. Disposable materials (e.g., gloves and Tyveks $^{\mathsf{M}}$) will be bagged and disposed of properly.

7.0 EMERGENCY AND CONTINGENCY PLANNING

This section identifies emergency and contingency planning that has been undertaken for operations at this site. Most sections of the CLEAN HASP provide information that would be used under emergency conditions. General emergency planning information is addressed in Chapter 14.0 of the CLEAN HASP. The following sections present site-specific emergency and contingency planning information.

- 7.1 PERSONNEL ROLES, LINES OF AUTHORITY, AND COMMUNICATIONS. The site HSO or the health and safety designee is the primary authority for directing operations at the site under emergency conditions. All communications both onsite and offsite will be directed through the HSO or designee.
- <u>7.2 EVACUATION</u>. Evacuation procedures at the site will follow those procedures discussed in Chapter 14.5 of the CLEAN HASP for upwind withdrawal, site evacuation, and evacuation of the surrounding area. Evacuation from the base will be conducted by travelling to the Avenue A gate or the main gate at Avenue D and exiting the base onto 103rd Street (County Road 29).
- 7.3 EMERGENCY MEDICAL TREATMENT AND FIRST AID. Any personnel injured onsite will be rendered first aid as appropriate and transported to competent medical facilities for further examination and/or treatment. The preferred method of transport would be through professional emergency transportation means; however, when this is not readily available or would result in excessive delay, other transport will be authorized. Under no circumstances will injured persons transport themselves to a medical facility for emergency treatment.

8.0 ADMINISTRATION

8.1 PERSONNEL AUTHORIZED DOWNRANGE. Personnel authorized to participate in downrange activities at this site have been reviewed and certified for site operations by the PM and the HSS. Certification involves the completion of appropriate training, a medical examination, and a review of this site-specific HASP. All persons entering the site must use the buddy system and check in with the site manager and/or HSO before going downrange.

CERTIFIED ABB ENVIRONMENTAL TEAM PERSONNEL:

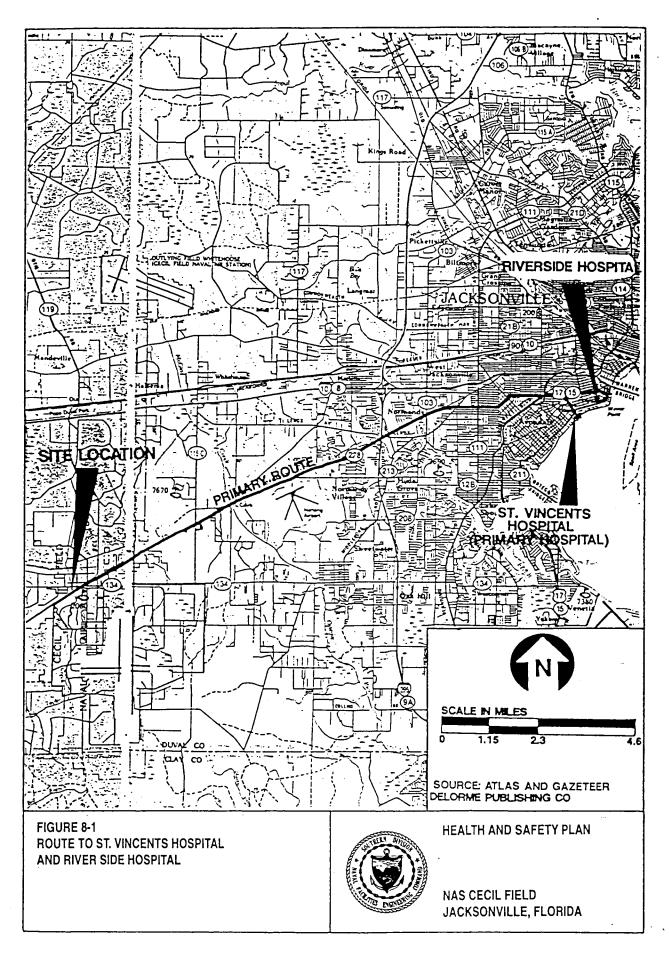
-	*+ Rao Angara	-		
	*+ Jim Williams	_		
	*+ Eric Blomberg	_		
-	*+ Randy Holloway	_		
	*+ Maria Pijnenburg	-		
-	*+ Jeffrey Tarr	_		
-	*+ Joe Ullo	-		
THER	CERTIFIED PERSONNEL:			
				_
				
	· · · · · · · · · · · · · · · · · · ·		 	

^{*} FIRST-AID-TRAINED

⁺ CPR-TRAINED

<u>8.4 MEDICAL DATA SHEET</u>. This Medical Data Sheet will be completed by all onsite personnel and kept in the support zone during site operations. It is not a substitute for the Medical Surveillance Program requirements consistent with the CLEAN HASP. This data sheet will accompany any personnel when medical assistance or transport to hospital facilities is required. If more space is required, use the back of this sheet.

Project:
Name:
Address:
Home Telephone: Area Code ()
Age: Weight:
In case of emergency, contact:
Address:
Telephone: Area Code ()
Do you wear contact lenses? Yes () No ()
Allergies:
List medication(s) taken regularly:
Particular sensitivities:
Previous/current medical conditions or exposures to hazardous chemicals:
Name of personal physician:
Telephone: Area Code ()



REFERENCE

ABB Environmental Services, Inc. 1997. Base Realignment and Closure Tank Management Plan, Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for Southern Division, Naval Facilities Engineering Command, Charleston, South Carolina (January).